HIGH OCCUPANCY TOLL (HOT) LANES: OVERVIEW AND BENEFITS

Overview

High Occupancy Toll (HOT) lanes allow qualified carpools and transit to use the High Occupancy Vehicle (HOV) lanes for free while other vehicles would use the HOV lanes for a fee. The fee rises and falls with the amount of traffic in the lane to keep the HOT lanes free flowing, thus providing more reliable travel times for commuters.

Benefits

While no strategy can be expected to eliminate congestion, HOT lanes have the potential to provide a variety of benefits to both motorists and transit users. These benefits include:

Trip Time Reliability

Traffic volumes on HOT lanes are assessed to ensure consistent and reliable travel times, particularly during peak travel periods. The U.S. Department of Transportation's performance standard for HOT lanes states that vehicles should maintain average speeds of at least 45 mph (90 percent of the time). On Minneapolis' MnPASS HOT lane, speeds of 50 mph are maintained over 95 percent of the time. In addition, traffic on Seattle's HOT lane (State Route 167) consistently flows freely during all hours of operation at speeds between 50 and 55 mph.

Commuter Choices

In congested corridors with HOV facilities and transit service, HOT lanes provide Single Occupancy Vehicle (SOV) motorists with an additional travel choice: the option of paying for a dependable, congestion-free trip. Prices displayed on variable message signs provide potential users with the information they need in order to decide whether to use the HOT lane or the adjacent general-purpose lanes. Experience from other HOT lane projects suggests that single drivers use the lane on an as needed basis and value the HOT lane option for activities, including getting to an important meeting on time, picking up a child from daycare, or attending a family sporting event.

Transit Enhancements

Transit riders are still able to use HOT lanes for free. In addition, transit users can depend on reliable trip times for their commute. Moreover, other HOT lane projects across the country report that travel times for transit remained the same or even decreased with the introduction of HOT lanes. Finally, significant transit enhancements in the form of new buses, increased express bus service, and new park-and-ride lots often accompany HOT lanes.

Source: U. S. Department of Transportation

For more information, please visit:
www.dot.ga.gov/I85HOTlanes

Contact:
Cherie Gibson
Director of Communications,
Georgia State Road and Tollway Authority
404-893-6103 or
cgibson@georgiatolls.com

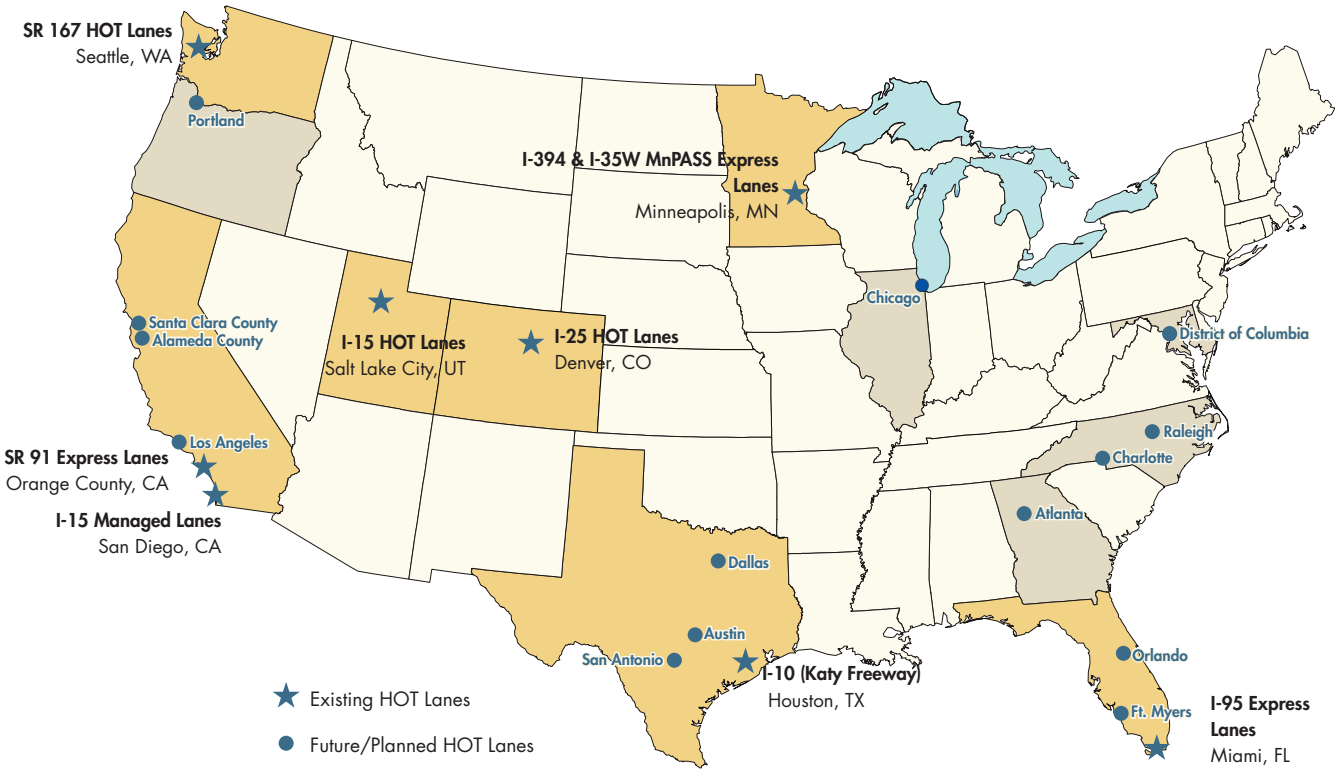
Karlene Barron
Director of Communications,
Georgia Department of Transportation
404-631-1824 or
kbarron@dot.ga.gov

HIGH OCCUPANCY TOLL (HOT) LANES: PROJECTS ACROSS THE U.S.

High Occupancy Toll (HOT) lanes are currently operating or being planned in a number of cities across the country. Cities with existing HOT lane projects include:

- San Diego
- Minneapolis
- Orange County
- Denver
- Houston
- Seattle
- Miami-Fort Lauderdale
- Salt Lake City

Map of HOT Lane Projects in the U.S.



HIGH OCCUPANCY TOLL (HOT) LANES: PROJECTS ACROSS THE U.S.

I-15 in San Diego

Since 1998, single-occupant vehicles pay a per-trip fee each time they use the eight miles of I-15 HOT lanes. Tolls vary "dynamically" (i.e., in real time) with the level of traffic on the lanes. Fees may rise or fall in $0.25 increments as often as every six minutes to help maintain free-flow traffic conditions on the eight mile segment. In addition, between 1998 and 2006, the number of carpools increased by 50 percent. I-15 commuters, including HOT lane users, carpoolers, and general purpose lane commuters, overwhelmingly support the HOT lanes.

I-25 in Denver

Seven miles of I-25 High Occupancy Vehicle (HOV) lanes were opened in the mid-1990s with a two+ vehicle occupancy requirement. Although carpool, vanpool, and bus use of the HOV lanes was good, available capacity still existed. In 2006, toll paying solo drivers were allowed to use the I-25 HOV lanes. These express lanes use electronic toll collection with preset variable pricing by time of day. The current fees range from a low of $0.50 on Saturdays, Sundays, and off-peak periods to a high of $3.25 during peak times to use the seven mile HOT lane. Solo drivers must obtain a transponder (which works similar to the Georgia Cruise Card) and maintain an active account to use the express lanes. The transponders can also be used on other toll facilities in Denver.

I-394 in Minneapolis

MnPASS, which was implemented in 2005, enables solo drivers to use the 11 miles of HOV lanes on I-394 for a fee. Dynamic pricing is used, with tolls based on the level of congestion in the HOT lanes. The base toll is $0.25, and the maximum toll is $8.00 to use the 11 mile HOT lane. MnPASS was undertaken to meet a number of objectives including improving the efficiency of I-394 by increasing the person- and vehicle-carrying capabilities of the HOV lanes, maintaining free flow speeds for transit and carpools in the HOV lanes, and enhancing highway and transit in the corridor with project revenues. In 2006, 63 percent of the traffic on MnPASS was buses and carpools, while 32 percent of the traffic was tolled vehicles, and the remaining five percent was toll violators.

SR 167 in Seattle

Seattle's HOT lanes were introduced on nine miles of State Route (SR) 167 in 2008. Toll rates vary to ensure that the HOT lanes are free flowing even when the general purpose lanes are congested. The HOT lanes preserve transit and carpools advantages (reports from Seattle indicate that travel times for carpools and transit have not increased since the introduction of the HOT lane), while allowing solo drivers the option to pay for a faster, more reliable trip when they need it most. Average tolls during rush hour often are between $2.00 and $5.00 the nine mile HOT lane segment.

Source: U. S. Department of Transportation

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Contact:
Cherie Gibson
Director of Communications,
Georgia State Road and Tollway Authority
404-893-6103 or
cgibson@georgiatolls.com

Karlene Barron
Director of Communications,
Georgia Department of Transportation
404-631-1824 or
kbarron@dot.ga.gov

HIGH OCCUPANCY TOLL (HOT) LANES: I-85 MARKET RESEARCH

Focus Groups

In late 2008 and early 2009, two rounds of focus groups were conducted that totaled more than 75 participants. They revealed what I-85 commuters knew, liked, or disliked about the HOT lanes concept, its perceived benefits and concerns, and key messages that resonated with focus group participants. Participants were recruited using a random sampling of I-85 commuters that were stratified by single drivers and carpoolers. Each 90-minute discussion consisted of eight or nine participants and one facilitator.

Source: U. S. Department of Transportation

Perceived Benefits

During the focus group sessions, several benefit themes regarding HOT lanes emerged, including that they:

- provide drivers with a sense of control over traffic
- are easy and convenient to use
- get you where you need to be in a timely manner
- make for a more enjoyable commute by reducing travel times
- provide a choice and are optional - "You do NOT have to use it"

Perceived Issues and Concerns

Participants provided feedback on issues and concerns, including:

- How is the HOT lane monitored and enforced for drivers who break the rules?
- Will I get a refund for having to get out of the lane if there is an accident?
- If I move in and out of the lane am I charged twice?
- How is the money from my toll going to be used?
- What is the maximum toll that will be charged?
- How do you enter/exit the HOT lanes?

The issues and concerns brought up during the focus group sessions are being discussed by the project partners. These questions will be addressed through the normal project planning processes.

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Director of Communications,
Georgia State Road and Tollway Authority
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cgibson@georgiatolls.com

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HIGH OCCUPANCY TOLL (HOT) LANES: I-85 MARKET RESEARCH

Surveys

In the Spring of 2009, an extensive quantitative survey of transit riders, carpoolers, and single drivers was conducted. The quantitative study was an email survey conducted in partnership with the Clean Air Campaign, a non-profit agency and project partner that promotes commute alternatives throughout the state of Georgia. By targeting commuters, particularly carpoolers and transit users through the Clean Air Campaign's database, a 30 percent response rate was achieved. This data provided profound insights into the attitudes and behaviors of these potentially impacted groups.

Key Carpooler Findings

- Carpoolers have adopted ridesharing as an integral part of their routine
- Carpooling is a practical, economic decision
- Demonstrating value of HOT lanes is critical
- Position HOT lanes as an innovative solution addressing congestion before it becomes intolerable
- Carpoolers are a key audience for outreach and promotion – need to set up a program just for them
- Unique opportunity for promotion of transit

Profile of the I-85 Carpooler

- Member of a 2 or 3 person carpool
- Carpool at least 3 times per week, for the last 6 months or more
- Employed as a professional or administrative support
- Cite cost savings as primary motivation
- Rarely stop for a personal errand
- Commute at regional peak periods
- Reside in Gwinnett County or surrounding areas

Use of the HOV lane by I-85 carpoolers

- 63% are in 2-person carpools
- 45% use the HOV lane 3 or more times per week
- 40% never or only occasionally use the HOV lane
- 64% would continue to carpool if HOV lane did not exist

HIGH OCCUPANCY TOLL (**HOT**) LANES: TRANSIT ADVANTAGES

Transit Enhancements

The I-85 HOV to HOT lane conversion builds upon a highly successful express bus system that currently operates in the I-85 corridor. The investment in transit will expedite the construction of key transit projects that were identified in the 2003 Regional Transit Action Plan (RTAP). In addition to the key features described below, implementation of the Downtown Circulator Plan will help to manage an orderly flow of buses in and out of downtown.

Key Features

- Transit buses are able to use the HOT lanes for free
- Thirty-six new passenger coach buses will provide services to seven express bus routes
- Two new park-and-rides at **Hamilton Mill** and **Cedars Road** will add 1,900 new parking spaces in mid to late 2011
- Xpress bus service will be added to the **Mall of Georgia** in Spring 2010
- The **I-985 and SR-20** park-and-ride lot will be expanded by 400 spaces to support new Xpress bus service to Midtown in early 2011
- GRTA and MARTA are key regional transit champions and project partners

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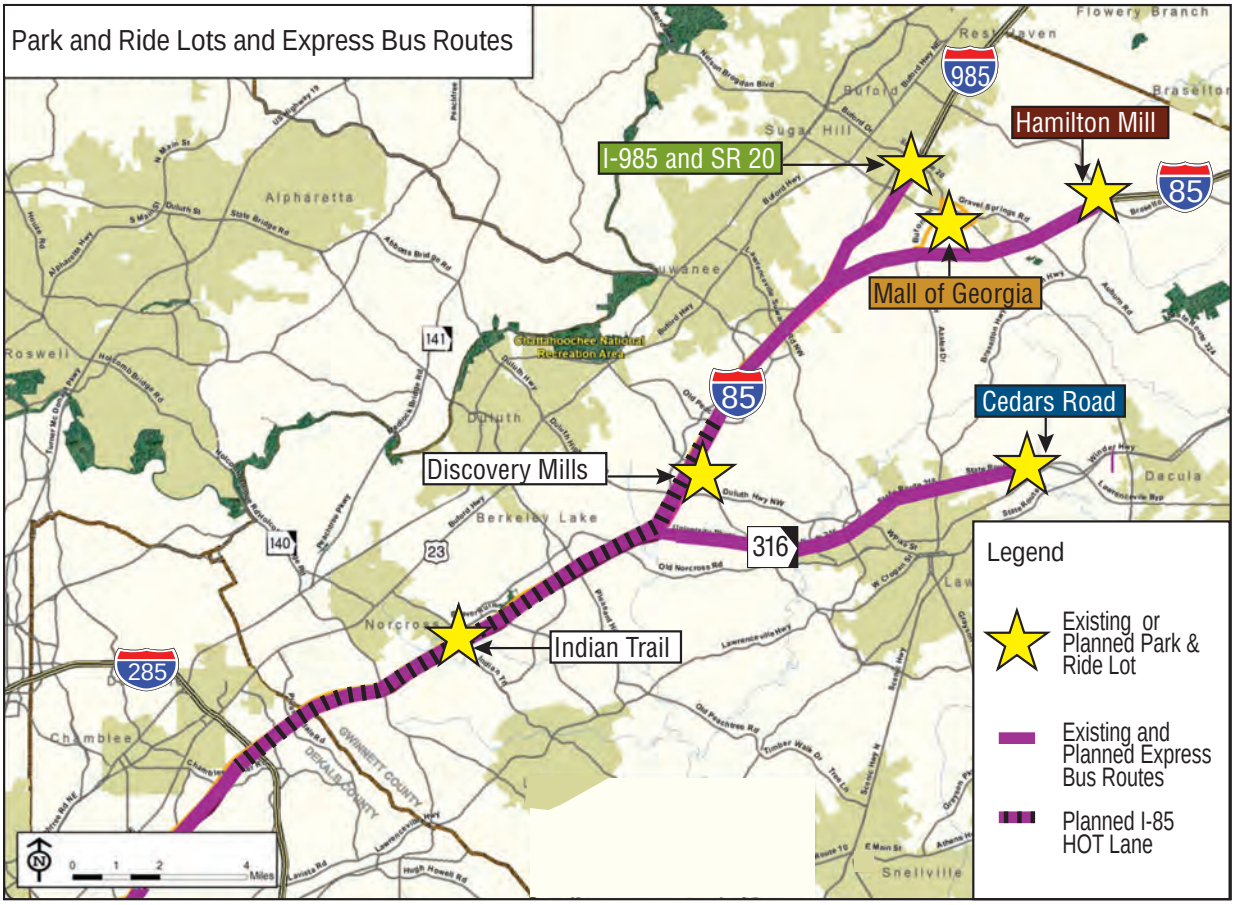

Georgia™ Partnership for Progress

HIGH OCCUPANCY TOLL (HOT) LANES: DETERMINING THE PRICE

Overview

HOT lane tolls are based on the concept of dynamic pricing, in which the toll price changes accordingly to the level of congestion on the roadway. When HOT lanes become too congested, the price increases and this in turn reduces the number of cars entering the lane. Thus, the price will be higher during peak periods when demand is greater and lower during less congested periods.

Source: U. S. Department of Transportation

Pricing of HOT Lane Projects in the United States

The table below displays the length, average price, and price range of various HOT lane facilities throughout the country.

Project	Length (Miles)	Average Peak Price*	Average Trip Price*	Price Range
I-15 in San Diego	12	$0.50 - $4.00	$1.10	$0.50 - $8.00
SR 91 in Orange County	10	$3.90 - $9.55	$3.01	$1.25 - $9.95
I-25 in Denver	7	$3.50	$2.35	$0.50 - $3.50
I-394 in Minneapolis	11	$1.00 - $4.00	$1.25	$0.25 - $8.00
SR 167 in Seattle	9	$1.00 - $2.00	$0.75	$0.50 - $9.00
I-10 in Houston	13	$2.00	$2.00	$2.00
I-95 in Miami	7	$1.90 - $2.65	$1.08	$0.25 - $6.20

Note: Average prices are from 2008-2009 data.

Process for Determining Pricing

The goal of this project is to provide commuters with a reliable travel option in the I-85 corridor, including peak hour speeds averaging greater than 45 mph in the HOT lane. The estimated average trip length is 6 – 7 miles, with typical toll prices ranging from $0.60 to $6.00 depending on congestion. It is estimated that over 90 percent of customers will pay less than $5.00 for their trip, including 25 percent of customers who will not pay any toll.

Ultimately, the price of the HOT lane at a specific location and point in time will be determined by consumer demand. The specific price range and conditions for adjusting the price will be determined by the project partners in early 2010 based upon detailed traffic forecasts and project goals.

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Georgia State Road and Tollway Authority
404-893-6103 or
cgibson@georgiatolls.com

Karlene Barron
Director of Communications,
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404-631-1824 or
kbarron@dot.ga.gov

HIGH OCCUPANCY TOLL (HOT) LANES: OCCUPANCY REQUIREMENTS

The existing I-85 High Occupancy Vehicle (HOV) lanes allow two or more person carpools to use the lane, with single drivers restricted from using this lane. The use of the I-85 HOV lanes by carpoolers has steadily increased since they were built. In fact the number of carpools in the HOV lane has grown to the point where the lanes have started to become congested during rush hour. In 2005-06, travel speeds in the morning heading to downtown Atlanta averaged 36 mph, making this 13-mile trip take an average of 25 minutes (see table below). Although travel times and speeds on I-85 have improved over the last year (2009) due to gas shortages, spikes in gas prices, a slowing economy, and improvements to SR 316, congestion is predicted to continue to worsen in the long run as the economy recovers and growth in the region continues.

Source: U. S. Department of Transportation

Based on travel forecast information for 2015, peak morning travel times on the I-85 HOV lanes are estimated to climb to 35 minutes, with an average speed of 26 mph. Thus, carpoolers and transit buses using the I-85 HOV lanes will need to plan for 10 more minutes, or about 30 percent more time for this leg of their trip. To preserve travel times and speeds on the I-85 HOV lanes two options were considered.

- **HOV3+:** Increase the occupancy requirement to three or more per vehicle. Two person vehicles or less would not be permitted to use the lane. This change would affect about 70 percent of current carpoolers and would result in the lanes being vastly underutilized.
- **HOT3+:** Increase the occupancy requirement to three or more and allow two-person carpools and single drivers to use the lane for a fee. The toll would be adjusted for two-person carpools and single drivers based on demand in order to maintain reliable trip times.

Travel Time and Speeds during the Morning Peak Period (1)

Occupancy Requirement	Year	I-85 HOV Lane Travel Time (min)	I-85 HOV Lane Travel Speeds (mph)
HOV2+	2005/6	25	36
HOV2+	2009	20	45
HOV2+	2015	35	26
HOV3+ or HOT3+	2015	18	50

On April 16, 2009, the Georgia Department of Transportation (GDOT) State Transportation Board approved a resolution authorizing the use of HOT3+ in the I-85 corridor. By implementing a HOT lane with the three person carpool requirement (i.e., HOT3+), the lanes will be managed to ensure optimal use and reliability of the travel times. In addition, the Clean Air Campaign will continue to provide resources to encourage carpooling, including assistance in matching carpoolers with one another through RideSmart.

(1) Based on corridor travel time runs for 2005, 2006 and 2009; and based on 2015 forecast modeling.

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Cherie Gibson
Director of Communications,
Georgia State Road and Tollway Authority
404-893-6103 or
cgibson@georgiatolls.com

Karlene Barron
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404-631-1824 or
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HIGH OCCUPANCY TOLL (**HOT**) LANES:
OCCUPANCY REQUIREMENTS

There are two operational HOT lanes in the U.S. that currently have a three or more person occupancy requirement.

SR 91 Express Lanes
Orange County, CA

- All motorists, including HOV3+ carpools, must register to use the lanes.
- Single occupant vehicles (SOVs) can use the lane by paying the posted toll.
- HOV2 carpools can use the lane by paying the posted toll. The primary incentive for two-person carpools is the ability to share the cost of the toll.
- HOV3+ carpools can use the lane without paying a toll during non-peak travel times and receive a 50 percent discount on posted tolls during peak travel times.

I-95 Express
Miami, FL

- All motorists, including HOV3+ carpools, must register to use the lanes.
- Single occupant vehicle can use the lane for a fee.
- HOV2 carpools do not receive a discount on posted tolls. The primary incentive for two-person carpools is the ability to share the cost of the toll.
- HOV3+ carpools can use the lane without paying a toll.

HIGH OCCUPANCY TOLL (**HOT**) LANES: **EQUITY**

Surveys conducted on High Occupancy Toll (HOT) lanes have concluded that a broad spectrum of income groups approve of congestion pricing because they are given the choice of selecting a tolled route, an alternative route, or a different mode of transportation. Furthermore, transit riders actually experience faster and more reliable transit trips with HOT lanes.

Findings from recent surveys and/or reports include:

- Focus groups and surveys conducted in 2008 by Georgia Tech, regarding potential HOT lanes in the Atlanta metropolitan region, asked participants about their willingness to pay for a trip on the HOT lane and how often they expected to use it. The researchers found that both low and high income respondents were willing to pay nearly the same amount for a trip on the HOT lane. Furthermore, the number of times per week that respondents expected to use the HOT lane was very similar among low, medium, and high income participants.
- In San Diego, there was 60 percent support for the FasTrak HOT Lane on I-15 amongst those persons with incomes of less than $40,000.
- Studies on State Route 91 in southern California have shown that at any given time about three-quarters of the vehicles in the toll lanes belong to low- and middle-income individuals with only one-quarter of the vehicles belonging to high-income individuals. According to data collected on "express lanes" in California, low-income drivers are as likely to approve of the lanes as drivers with higher incomes. In fact, over half of the commuters (51 percent) with household incomes under $25,000 a year approved of toll lanes.
- A 2006 survey on the I-394 MnPASS HOT Lane in Minnesota revealed that MnPASS usage was reported across all income levels, including 55 percent of lower-income respondents. The survey also revealed support for the lanes to be high across all income levels including 64 percent of lower-income respondents.

Source: U. S. Department of Transportation

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Georgia Department of Transportation
404-631-1824 or
kbarron@dot.ga.gov

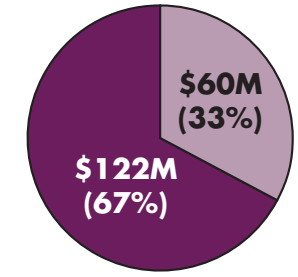
ATLANTA CONGESTION REDUCTION DEMONSTRATION GRANT: A 2:1 INVESTMENT IN TRANSIT OVER HIGHWAYS

Overview

The United States Department of Transportation awarded a $110 million grant to the Atlanta region to support a pilot project through the Congestion Reduction Demonstration (CRD) Program. The long-term goal of the program is to regionally implement an integrated system of High Occupancy Toll (HOT) lanes, enhanced transit service, and innovative technologies.

Phase I of the program will focus on I-85, but also includes investments across the Atlanta metropolitan area (see map). These investments are aimed at providing trip time reliability, commuter choices, and transit enhancements. In an effort to broaden the benefits of the CRD Program, the region is advancing and leveraging a larger package of regional transit projects. The total project investment is $182 million of which nearly 2/3 will fund transit enhancements (see Figures 1 and 2).

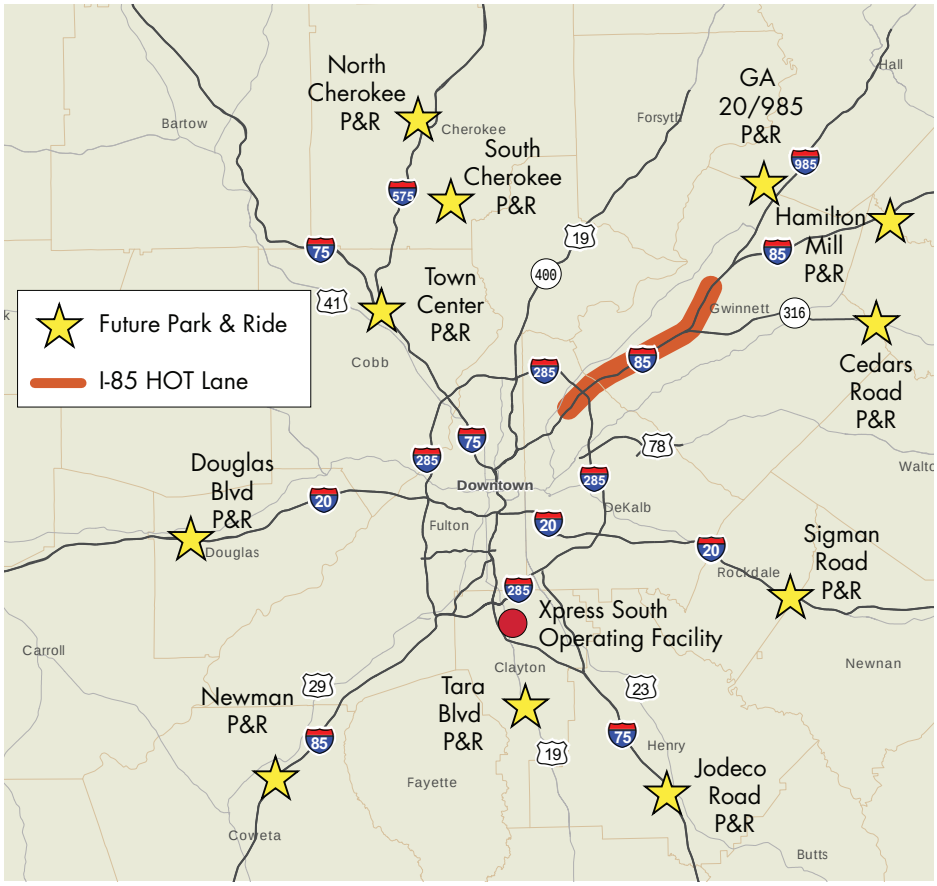
FIGURE 1:
Funding Expenditures ($182M)



I-85 Highway and Tolling Improvements

Transit Improvements (both in the I-85 corridor and across the region)

Congestion Reduction Demonstration Grant Improvements



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Director of Communications,
Georgia State Road and Tollway Authority
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cgibson@georgiatolls.com

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Georgia Department of Transportation
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kbarron@dot.ga.gov

ATLANTA CONGESTION REDUCTION DEMONSTRATION GRANT: A 2:1 INVESTMENT IN TRANSIT OVER HIGHWAYS

I-85 Corridor and Regional Transit Improvements

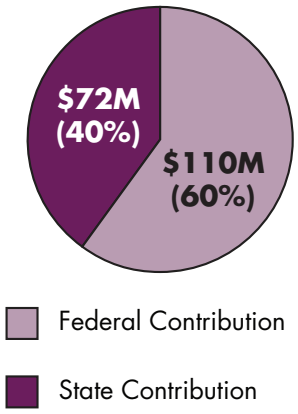
Approximately $122 million (67 percent of total project costs) will be targeted at transit investments, including expanding GRTA's Xpress bus services. Out of the $122 million, approximately $80 million will fund new facilities including 11 new or expanded park-and-rides, while the remaining $42 million will purchase 82 new passenger coach buses. More specifics on the transit investment include the following:

- In the I-85 corridor, investments include 36 new passenger coach buses, new park-and-rides at Hamilton Mill and Cedars Road, and expansion of the I-985/GA 20 park-and-ride lot.
- Elsewhere in the region, the CRD funding will be used to construct eight park-and-ride lots and the South Xpress Operating Center and procure 46 additional passenger coach buses.

I-85 Highway and Tolling Improvements

Phase I of the pilot project includes converting approximately 15 miles of existing High Occupancy Vehicle (HOV) lanes to HOT lanes. Innovative technologies will enable tolls to vary dynamically based on the number of vehicles using the HOT lanes in order to keep the lane free-flowing and provide reliable travel time. I-85 HOT lane highway and tolling improvements will be approximately $60 million (33 percent of total project costs). The $60 million includes the tolling system, construction, public outreach, and performance monitoring.

FIGURE 2:
Funding Sources for the $182M



The I-85 HOT Lanes project is part of GDOT's Regional Managed Lane System Plan which was adopted as the framework for implementing a managed lanes network throughout the metro Atlanta Region. The plan establishes a tiered approach to delivering managed lanes projects on the region's congested highway corridors, ultimately providing commuters with reliable transportation options and time-saving benefits.